

REMARKS

This application has been reviewed in light of the Office Action dated June 9, 2006. Claims 1-18 are presented for examination. Claims 1 and 15-17, the independent claims, have been amended to define still more clearly what Applicant regards as his invention. Favorable reconsideration is respectfully requested.

In the outstanding Office Action, Claims 1, 2, 5-13 and 15-18 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent 6,108,441 (Hiratsuka et al.). In addition, Claim 3 was rejected under 35 U.S.C. § 103(a) as being obvious from *Hiratsuka* in view of U.S. Patent 5,231,504 (Magee), Claim 4, as being obvious from *Hiratsuka* in view of U.S. Patent 5,937,089 (Kobayashi), and Claim 14, as being obvious from *Hiratsuka* in view of U.S. Patent 6,172,681 (Ueda).

The aspect of the invention set out in independent Claim 1 is an image processing apparatus for performing color adjustment for image data, and comprises designating means for designating a reference color, an adjusted color of the reference color, and an adjustment region, including the reference color and the adjusted color, in a color space. The apparatus also has region determining means for determining whether a pixel value of input image data is in the adjustment region, and adjusted value calculating means for calculating an adjusted pixel value of the image data on the basis of a function of the reference color, the adjusted color and a boundary of the adjustment region, if the region determining means determines that the pixel value of the image data is in the adjustment region.

Claim 1 has been amended to recite explicitly that “the designated adjustment region has a boundary within the interior of the color space”. That is, Claim 1

now makes even clearer that (1) the designated adjustment region is entirely within the color space, (2) the designated adjustment region has a boundary, (3) that boundary is within the color space, and in fact, is “within the interior” of the color space, and (4) that the color space hence includes points that are not in the designated adjustment region or on the boundary thereof.

Thus, in an apparatus according to Claim 1, color adjustment is performed at a point *only if* the pixel value of the point falls within the specified (designated) region of the color space. Because this region is not the entire color space, it will be appreciated that the changes made do not affect the entire color space, and do not require such heavy commitments of processing time as in the prior art. At the same time, the problems encountered conventionally with discontinuities are avoided, as well.

Applicant notes the comments at pages 2 and 3 of the Office Action as to why the Examiner did not accept the arguments presented in the last Amendment, appear to be based on a belief that the claims do not recite a limited region in which the color adjustment is performed. Moreover, in applying the prior art to the claim language, the Office Action states that col. 8, lines 17-25, of *Hiratsuka* meet the recitation of a color adjustment region, and of the process of determining whether a given pixel is within such region.

Based on these statements, it is believed that the Examiner has misapprehended the claim language, and also has misapprehended certain important points in *Hiratsuka*, the primary reference. The claim language has been amended as described above, to make still clearer what Applicant is claiming. In addition, Applicant submits the following observations on *Hiratsuka*.

In the *Hiratsuka* system, an operator designates one or more colors that are to be adjusted, and designates respective colors to which those colors are to be changed. This process of color adjustment can be performed in a number of different color spaces, although the *Hiratsuka* specification uses an LCH as an example.

For each color designated by the operator, the *Hiratsuka* system calculates color adjustment parameters α , β and γ , relating respectively to luminosity, chroma and hue (col. 7, line 65, through col. 8, line 34).

In processing the data of the image, the *Hiratsuka* system processes each pixel as follows. The distance d_i (in the color space) of the pixel's color from each of the designated colors is calculated (that is, d_1 is the distance from the first designated color, d_2 is the distance in color space from the second designated color (if any), etc.). Col. 8, lines 37-43. The color of the pixel is then adjusted, based on the color's distances d_i from the various designated colors, and based on the parameters α_i , β_i and γ_i relating to the respective designated colors. Col. 8, lines 44-64. More specifically, as can be seen from equation (7), the adjustment made to the color of an arbitrary pixel is based on a combination of the parameters of the adjustments of the respective designated colors, weighted by an amount that is a function of the pixel's distances d_1 through d_n to the various designated colors. In the example given in col. 8, it will be noted that the adjustment is also dependent on a sum of functions $f(d_1)$ through $f(d_n)$, the mentioned function being $f(x) = x^{-2}$ in that example. Thus, the farther the original color of a given pixel is from the designated colors, the smaller will be the amount of adjustment, while if it is very close to one of the designated colors, it will be adjusted very similarly to that designated color.

Applicant notes that according to the *Hiratsuka* description, there is some adjustment of the color of *every* pixel, *regardless of the location of that pixel's color in the LCH color space*. No provision is made in *Hiratsuka* for designating a *region* in the color space, such that the color adjustment process is only performed on original colors that are within the region. This is inconsistent with the language of Claim 1, which recites the designation not only of a reference color (to be adjusted) and of an adjustment color (to which the reference color is to be adjusted), but also of a color adjustment region, having a boundary within the relevant color space and containing the reference and the adjustment color.

The Office Action appears to cite col. 8, lines 17-25, as teaching such a region. Applicant cannot agree, and, as discussed above, believes that this passage clearly describes that every pixel of data is subjected to the same processing. No actual determination is made as to whether a given pixel is within the color space, much less within a designated region having a boundary in the interior of the color space, as is recited in Claim 1.

Moreover, it is noted that Claim 1 also recites that the color adjustment on those pixels whose original color is within the designated color adjustment region, is performed “on the basis of a function of the reference color, the adjusted color and a boundary of the adjustment region”. Nothing has been found, or pointed out, in *Hiratsuka* that would teach or color adjustment based in any way on the boundary of such a region.

For all these reasons, Applicant submits that Claim 1 is allowable over *Hiratsuka*.

Independent Claims 15-17 are method, system and program claims, respectively, corresponding to apparatus Claim 1, and are believed to be patentable for at least the same reasons as discussed above in connection with Claim 1.

A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as a reference against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and allowance of the present application.

Applicant's undersigned attorney may be reached in our New York Office by telephone at (212) 218-2100. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,

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